

Claims

Claims 1-5 (Cancelled).

Claim 6 (Currently amended): System according to Claim 4 33, in which the unit used to determine the actual glucose concentration G_a is a microdialysis device.

Claim 7 (Currently amended): System according to Claim 4 33 that also includes a display unit for displaying the extrapolated glucose concentration G_p .

Claim 8 (Currently amended): System according to Claim 4 33 that also includes a warning unit that emits a warning signal when the extrapolated glucose concentration G_p is outside a selected normal range.

Claim 9 (Currently amended): System according to Claim 4 33 in which the user enters the carbohydrate units consumed (KH_i).

Claim 10 (Currently amended): System according to Claim 4 33 in which the system contains a control unit for an insulin infusion device or is connected to such a device, and in which the insulin doses administered (I_i) and their times of administration (t_i) are transmitted from the control unit to the data input device for entering insulin doses.

Claims 11-32 (Cancelled).

Claim 33 (Previously Amended): System for the extrapolation of a glucose concentration, comprising:

a data input device for entering insulin doses administered (I_i) and their times of administration (t_i),

the same or a second data input device for entering carbohydrates (KH_i) consumed or to be consumed, and their times of consumption (t_i).

a unit for determining the actual glucose concentration (G_a) in a patient's bodily fluid at a specific point in time (t_a),

a memory unit for storing administered insulin doses and their times of administration, and carbohydrates consumed and their times of consumption,

an evaluation device for evaluating the data stored in the memory unit and extrapolating a glucose concentration at a point in time (t_p), whereby t_p is after t_a , and the extrapolation comprises the following steps:

determination of the portion (I_{wirk}) of insulin doses that take effect within the interval between t_a and t_p ,

determination of the portion (KH_{wirk}) of carbohydrates consumed that take effect in the interval between t_a and t_p , and

determination of an extrapolated glucose concentration G_p at the point in time t_p using I_{wirk} and KH_{wirk} , wherein

the portion of insulin doses (I_{wirk}) that take effect in the period between t_a and t_p is calculated using the following formula

$$I_{\text{WIRK}} = \sum_{i=1}^n \int_{t_a}^{t_p} C_i(t) dt (I_i); n = \text{number of insulin doses to be considered}$$

whereby CI represents the quantity of insulin that is bioavailable at the point in time t and therefore represents the insulin effectiveness profile; with

$$\int_0^{\infty} C_i(t) dt = 1.$$

Claims 34-35 (Cancelled).

Claim 36 (Currently amended):

System according to Claim 4 33, in which the point in time t_p is from 0.5 to 5 hours after t_a .

Claim 37 (Currently amended): System according to Claim + 33, in which the point in time t_p is at least 2 hours after t_s and up to 4 hours after t_s .

Claims 38-45 (Cancelled).